Friday Flyer – September 21, 2012
Something to share—an interesting research project or kudos for a student, teacher or mentor? Contact Kris Whelan.

CENTER SPOTLIGHT: Fermilab/University of Chicago -http://quarknet.fnal.gov/fnal-uc/

Contact Chris Stoughton (stoughto@fnal.gov) for information about how to develop a successful student research program.

Looking for activities for teaching Modern Physics? Check out the 200+ page pdf teacher's guide Fermilab/University of Chicago teachers piloted and put together in 2006: http://quarknet.fnal.gov/materials/fnal-guide.pdf

High school teachers from the Chicago suburbs meet two or three days in the summer and a few times during the school year to discuss how to effectively integrate research experiences into their classrooms. This summer the topic was measurement and error. Over three days, the teachers learned about multiple Fermilab experiments, discussing ways that scientists take measurements and reduce error on these projects. Both topics align with the Next Generation Science Standards, but many high school students struggle to understand the importance of error analysis and prevention. Teachers discussed lesson plans available at Fermilab and their own methods of teaching error analysis. In previous years, the teachers have taken part in cosmic ray studies and studied evidence of the expansion of the universe from Sloan Digital Sky Survey data. In February, the center hosted their fourth CMS masterclass, and over 170 students applied for one of eight slots for the summer student research program. For this component, teams of high school students and teachers worked on research projects with Fermilab scientists. The final projects are available on the center's website.

News from QuarkNet Central
It is time to start planning your RFP request for FY13. Budgets are very tight, so consider your request carefully. Typical requests range from funds for field trips, materials for a "make and take" project, classroom resources or support for a teacher giving a talk about QuarkNet or particle physics at a conference. Requests for items that have maximum impact on the largest number of teachers carry more weight than individual teacher requests. If you have questions about what is allowable, contact your staff teacher. You have probably received your MOU by now. Let us know if you have any questions.

Physics Experiment Roundup:
How to tell a Higgs from another boson?
http://www.quantumdiaries.org/2012/09/20/how-to-tell-a-higgs-from-another-boson/
"On July 4, when CERN announced 'the observation of a new particle' and not the discovery of the Higgs boson, many wondered why be so cautious. It was simply too early to tell what kind of boson we had found. The Higgs boson is the last missing piece of the Standard Model of particle physics, a model that has enabled theorists to make extremely precise predictions. But to fully trust this model, it should have all its pieces. Who would want to complete a 5000-piece puzzle with the wrong piece?" (From www.quantumdiaries.org)

Just for Fun
Fermilabyrinth—Warp Speed, Ghost Bustin', Code Crackin', Law 'n Order -
http://ed.fnal.gov/projects/labyrinth/games/index1.html
12 particle physics games based on Lederman Science Center exhibits with links to more information and activities. (From the Fermilab Education Office) Some require downloading Adobe Flash Player or Adobe Shockwave.

Adobe Flash Player (http://get.adobe.com/flashplayer/)
Adobe Shockwave (http://get.adobe.com/shockwave/)

Staff Teachers

Ken Cecire, kcecire@nd.edu
Bob Peterson, rspete@fnal.gov
Tom Jordan, jordant@fnal.gov
Kris Whelan, kkwhelan@uw.edu